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wherein the first and second plurality of optical line amplifiers are configured to substantially equalize gain across the set of channels within the operating window.

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82. (New) The system of claim ¹81, wherein the first direction is opposite the second direction.

REMARKS

Applicants respectfully request that the application be reconsidered in view of the above amendments and the following remarks. Claims 41-76 have been canceled. Claim 77 has been amended. New claims 78-82 have been added. Claims 77-82 are pending in this application. Reconsideration of the outstanding rejection of claim 77 and allowance of claims 77-82 is respectfully requested in view of the following remarks.

Pending claim 77 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,041,152 (hereinafter CLARK) in view of U.S. Patent No. 5,452,116 (hereinafter KIRKBY). Applicants filed a Declaration under 37 C.F.R. § 1.131 on May 7, 2002 to remove CLARK as alleged prior art. Applicants resubmit herewith a copy of this Declaration and a postcard indicating receipt of the Declaration at the U.S. Patent Office. In view of this Declaration, Applicants respectfully submit that CLARK is not prior art with respect to the present application. Applicants, therefore, respectfully request withdrawal of the rejection of pending claim 77 under 35 U.S.C. § 103(a) in view of CLARK and KIRKBY.

Pending claim 77 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,909,295 (hereinafter LI) in view of KIRKBY or U.S.

Patent No. 5,633,741 (hereinafter GILES). The rejection is respectfully traversed.

In rejecting the claims, the Office Action admits that LI does not disclose "amplifying optical signals corresponding to each subwindow by using different optical line amplifiers." The Office Action, however, cites as KIRKBY or GILES as allegedly disclosing this amplification. Applicants respectfully submit that neither KIRKBY or GILES discloses the optical line amplifier features recited in amended claim 77.

KIRKBY discloses an optical transmission system in which an optical signal traveling through an optical fiber transmission path 11 (see FIG. 1) is demultiplexed into individual channels (column 3, lines 25-28). The demultiplexed individual channels are then separately amplified by a set of amplifiers 15b before being recombined in a wavelength multiplexer 15c for further transmission over the optical fiber transmission path 11 (column 3, lines 28-32). KIRKBY, thus, discloses the demultiplexing, amplification using a single set of amplifiers, and multiplexing of optical signals traveling in a single direction through an optical fiber. KIRKBY does not disclose or suggest the use of a "first plurality of optical line amplifiers," with each of the first plurality of optical line amplifiers configured to amplify a different respective subgroup of a first set of subgroups of optical signals traveling in a first direction, and a "second plurality of optical line amplifiers," with each of the second plurality of optical line amplifiers configured to amplify a different respective subgroup of a second set of subgroups of optical signals traveling in a second direction, as recited in amended claim 77. KIRKBY, thus, does not supply the deficiencies in LI with respect to claim 77.

Turning to GILES, this reference discloses the use of a bi-directional amplifier 8 for amplifying signals traversing a single-fiber transmission line 7 in an optical transmission

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system (see FIG. 1; column 4, lines 55-56). As shown in FIG. 2, and described in column 4, line 64 – column 5, line 12, the bi-directional amplifier 8 splits channels, traveling in different directions, into two different paths for amplification by two different amplifying fibers 22 and 23 (i.e., channels f1 and f3 amplified by amplifying fiber 22 and channels f2 and f4 amplified by amplifying fiber 23). Bi-directional amplifier 8 then recombines the channels for transmission over single-fiber transmission line 7. GILES, thus, discloses the use of a single amplifying fiber for amplifying channels traveling in different directions through an optical fiber. GILES, however, does not disclose or suggest a first plurality of optical line amplifiers configured to amplify a first set of subgroups of optical signals traveling in a first direction and a second plurality of optical line amplifiers configured to amplify a second set of subgroups of optical signals traveling in a second direction, as recited in amended claim 77. GILES, thus, does not supply the deficiencies in LI with respect to claim 77.

In view of the remarks above, Applicants respectfully submit that neither KIRKBY nor GILES remedies the deficiencies in LI with respect to claim 77. The cited references, therefore, do not suggest or disclose the combination of features recited in claim 77. Withdrawal of the rejection of claim 77 under 35 U.S.C. § 103(a) is, thus, respectfully requested.

New claims 78-80 depend from claim 77. These claims, therefore, patentably distinguish over the cited references for at the reasons set forth with respect to claim 77 above.

New claim 81 recites a “system for equalizing optical gain across a set of channels within an operating window of a fiber communication network” that includes features similar

to those discussed with respect to claim 77 above. Applicants, therefore, respectfully submit that claim 81 patentably distinguishes over the cited references for at least the reasons set forth with respect to claim 77.

New claim 82 depends from claim 81. Applicants submit that claim 82 patentably distinguishes over the cited references for at least the reasons set forth with respect to claim 81.

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims. To the extent necessary, a petition for an extension of time under 37 CFR 1.136 is hereby made. Please change any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 13-2491 and please credit any excess fees to such deposit account.

Respectfully submitted,

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MARKED-UP VERSION OF AMENDMENT SHOWING CHANGES MADE

Claim 77 has been amended as follows:

77. (Amended) A system for multiplexing/demultiplexing optical signals in a set of multiple channels within an operating window of a fiber communication network, comprising:

a coarse wavelength division multiplexing/demultiplexing unit configured to support bi-directional optical signal traffic, the optical signal traffic comprising a first set of subgroups of optical signals traveling in a first direction and a second set of subgroups of optical signals traveling in a second direction;

a first plurality of fine wavelength division multiplexers configured to support uni-directional traffic comprising the first set of subgroups of optical signals; [and]

a second plurality of fine wavelength division demultiplexers configured to support uni-directional traffic comprising the second set of subgroups of optical signals;

a first plurality of optical line amplifiers, each of the first plurality of optical line amplifiers configured to amplify a different respective subgroup of the first set of subgroups of optical signals; and

a second plurality of optical line amplifiers, each of the second plurality of optical line amplifiers configured to amplify a different respective subgroup of the second set of subgroups of optical signals.



Inventor(s): Viet LE et al.

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Title: METHOD AND SYSTEM FOR MODULAR MULTIPLEXING AND AMPLIFICATION IN A MULTI-CHANNEL PLAN

The following was/were received in the U.S. Patent and Trademark Office on the date stamped hereon:

- ☒ Transmittal Letter for Declaration Under 37 CFR 1.131
- ☒ Declaration Under 37 CFR 1.131 for Viet Le
- ☒ Declaration Under 37 CFR 1.131 for Xiaoping Mao
- ☒ List of Exhibits A through F



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